UNIT 1 - ENERGY
SECTION 3 - ENERGY CONSERVATION

ARE YOUR COMPUTERS WASTING ENERGY?

Adapted from: Watt Watchers of Texas

Background Information

According to EPA estimates, the average powered workstation costs $37 a year to operate. A computer with a full power management configuration can cost as little as $16.40 a year. Seventy-five percent of a workstation's energy usage comes from the monitor. Just by turning your monitor off when you are not at your computer will save you on computer operating costs.

Power management is a process that allows monitors and computers to enter low power states when they are sitting idle. Typically, enabling monitor power management reduces the usage from 60-90 watts down to 2-10 watts. Nationwide, PCs and monitors in commercial and industrial settings use 32 billion kWh of electricity every year. This is more than 1.5% of all the electricity consumed by the commercial sector alone. Taking two little steps has the potential to save over half of this energy: turning off PCs and monitors after work, and enabling monitor power management. Many people choose to enable power management for the monitor only so no conflict will occur while downloading from the Internet or when installing software and so on. This alone will capture 90% of the potential energy savings.

Screen savers do not save energy; they are pretty to look at. Older computer monitors used screen savers so the image would not burn into the screen. Today's computers do not do this, so screen savers are not necessary.

The Environmental Protection Agency, better known as the EPA, began
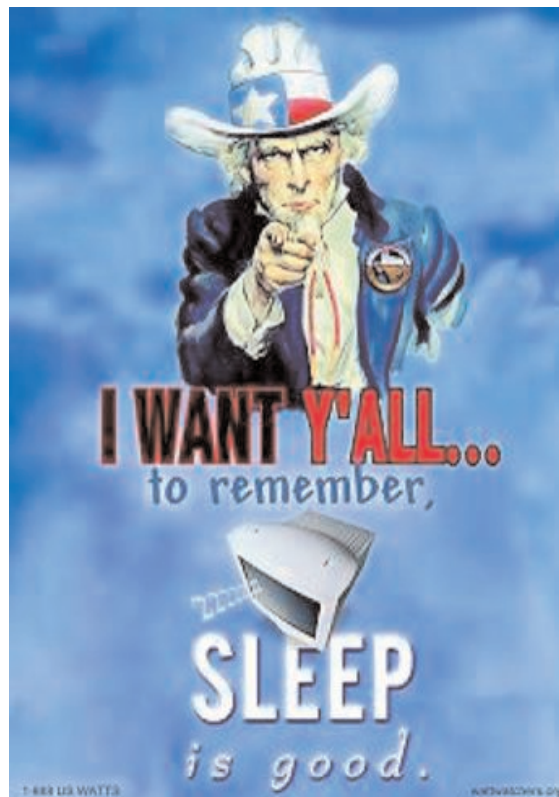
Investigation

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investigating the energy use of computers a few years back. They discovered that computers were not all that energy efficient, and that the amount of energy used by computers was having an effect on the environment. Therefore, the EPA decided that they were going to try to address the issue, They launched the Energy Star program jointly with the Department of Energy, DOE. Energy Star is a voluntary partnership with equipment manufacturers across a variety of industries to reduce the power consumption and the pollution associated with the use of electricity. Intel has been at the forefront of developing advanced power management technologies in the computer world. In 1994, they released the first Energy Star qualified personal computer.

The DOE has a program that will enable power management on your workstation automatically. Running this software takes 30 seconds, and by doing so, you will save around $20 per year. All you have to do is download, install, double click the icon, and the software does the rest. It is simple and does not interfere will any other programs. Try out the Wizard at: http://www.computerpowersaver.com/startdownload.asp?ref=wwt
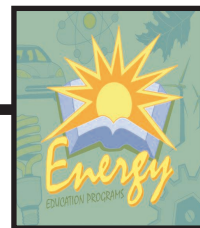
For implementing monitor power management over a network using a server, there is a different program. The program, called EZ Save, is available at http://www.energystar.gov/powermanagement. This software has the potential to save school districts thousand of dollars in energy savings. For example, a school district with 10,000 computers can save $171,173* in energy costs by using EZ Save to implement monitor power management district-wide across the network.

*Figure is based on the national averages for computer usage. See the Energy Star savings calculator for specific savings for your district: http://www.energystar.gov/powermanagement/large_calculator.asp?orgtype=small

ARE YOUR COMPUTERS WASTING ENERGY?

Home Computer Energy Audit

This computer energy audit will allow you to determine the amount of money you can save by activating Monitor Power Management on your computer (with your parents' help and permission).

1. How many computers do you have? _____
2. Do you turn your computer off at night? _____
3. How many hours per day is your computer on? _____
4. What is your cost of electricity per kWh? _____

Go to http://wattwatchers.utep.edu/WWsleepisgood.htm and download the EZ Wizard program. Follow the steps to implement power management for your computer monitor. Make sure you write down your current settings.

Current Settings:
Turn off Monitor: _____ minutes

EPA recommends that you put your monitor to sleep after 10 minutes. The EZ Wizard program will give you a choice of 10, 15 or 20 minutes. Choose the setting desired and you are done - it is that easy.

Using your current settings information and the information at the top of the page, calculate the amount of energy and money you will save.

Example: One computer is on for 16 hours per day at a cost of $.08 per kWh.

16 hours x.08 cost / kWh = 3.28 cost / day to run the computer

The same computer now has monitor power management and is asleep for 12 hours during the 16 that it is turned on.

16 hours	4 hours of power	$3.28 original cost
- 12 hours asleep	x$0.08 cost / kWh	- .32 new cost
4 hours of power	$0 .32 cost / day	$2.96 savings / day

Your computer:
_____Hours on _____ Hours on _____Hours of power_____Original cost
_____Cost/kWh _____ Hours asleep _____ Cost / kWh _____New cost
_____Cost/day _____Hours of power_____Cost/day _____Savings / day

Investigation

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Computer Energy Audit

This computer energy audit will allow you to determine the amount of money you can save by activating Monitor Power Management on your computers at school.

1. Count the number of computers in the school _____

2. Are the computers turned off at night and on weekends? _____

3. Number of computers turned off at night_____

4. Number of computers left on at night _____

5. Number of computers turned off on weekends _____

6. Number of computers left on during weekends _____

7. Find out how much the school pays per kWh. (Ask your school's principal or the energy manager). Cost per kWh_____

8. Go to www.energystar.gov/powermanagement and click on the calculator to determine the amount of money that can be saved by implementing power management in your school district.

9. How can you remind teachers to turn off their computers at night? Write a paragraph using your ideas.

Watt Watchers 100,000 Monitor Pledge Form
for
ENERGY STAR® Million Monitor Drive

_____(*name*) is committed to saving energy and protecting the environment through computer monitor power management. With our pledge, _____(*name*) joins ENERGY STAR in its quest to activate power management on one million computer monitors nationwide. We recognize the significant financial (over $30 million/year), energy (over 400 million kWh/year), and environmental (over 300,000 tons of avoided CO_2 emission/year) savings achievable through setting one million monitors to enter a low-power sleep mode during periods of inactivity.

We pledge to enable power management features on _____ (*enter amount*) monitors by _____ (*enter month*), 200__ (*enter year*).

_____   _____
Student   **Date**

_____   _____
Parent   **Date**

Please return this form to:

Watt Watchers of Texas
UTEP-Energy Center
P.O. Box 68660
El Paso, TX 79968
Phone/Fax: 1-888 US WATTS
wattwatchers.org
Saving Energy in Texas Schools